



REPLY TO

ATTN OF: DCOL (

29 July 1966

SUBJECT: Report on Conference on Thermal Improvements

TO: Commander

THRU: DCO

1. A conference was held 28 July 1966 in [redacted] office at Burbank California. The following persons were present:



2. Subjects discussed primarily concerned the emergency suit vent cooling, insulation material in the pressure suit and pressure helmet sun shade visor coatings.

3. It was concluded that more measurements of the inlet outlet suit vent temperatures are necessary. These measurements are to be taken periodically throughout the entire flight. Prior to this time we have not been able to get enough information on an entire long hot flight to produce conclusive results. [redacted] assured that his people would be rebriefed on the importance of this study and their complete cooperation and coordination was necessary to expedite a positive solution. It was also stated that vital statistics such as time in flight, time at speed, altitude, fuel load and configuration must be included with each temperature reading. A card recording this information, plus the personal equipment configuration data will be made up on each flight by an article that is wired with temperature sensing device.

a. Thus far there have been several steps taken to aid in decreasing the heat problem. One attempt is by the use of added insulated material. Due to the very high radiant heat, it was felt that this might be the answer and one of the subjects was fitted with the insulated material in his suit and three more ordered. This test with subject 1050 was not successful in that there was not enough tolerance in his suit to allow for the extra bulk, which resulted in more restriction of vent flow and actually created a warmer condition than without the insulation. However, it is still felt that increased insulation is part of the solution and more intensive study and tests are programed in the immediate future.

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Instructions apply

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25X1A b. Another area under study is that of the coated visors and helmets. [] stated that tests thus far, clearly indicate that there is a marked decrease in the temperature of the helmet and visor after being coated. The sun shade visor is coated with I.R. on the outside and A.R. inside, while the helmet is coated with silver. It was established that there is a minimum of 10 degrees centigrade to 12 degrees centigrade difference in the coated and non-coated items. These temperature measurements were taken both at the exposed surface and in the interior. Six (6) visors were procured through Perkins-Elmer. [] are working with (4) four of the units now and the other 2 have been sent back to David Clark.

25X1A [] stated that he would like to have the visor coatings done by a [] in the future as he was not satisfied with the quality of the Perkins Elmer. [] said he did not completely agree, however, to check and see if there was any cost difference and if not, let them both work on it. 25X1A

25X1A c. A manually operated, continuous flow oxygen cooling to the face is another attempt at the solution to our cooling problem that [] are working with. It was mentioned however, that this system must also have an automatic means of shutting off the supply of continuous flow during an emergency escape. It was suggested that perhaps an antroid shut off could be incorporated into the manual valve that has been supplied by David Clark Co. [] said that he would follow up on this. 25X1

25X1A d. A new design of the sun shade located on the inside of the canopy, appears to have merit. The present horizontal shade is to be moved forward and the new vertical, accordian type shade will cover the rear 2/3 of the cockpit. One shade has been sent to the area for testing and evaluation. It was felt that if radiant heat from the windows and solar heat through the windows were contributing to the problem, then both could be blocked by use of complete sun shades. Findings will be included in later reports.

25X1A e. The phase II helmet with integrated mask has also been a step towards better cooling. We presently are carrying six (6) in our inventory. Subject 1051 now has two complete phase II helmets. [] has one which he does not wear. [] has one which he wears every flight and has requested a second phase II helmet-mask. There are two spare phase II helmets; one being the prototype and the other [] Subject 1046 has requested a phase II helmet and mask also, so he will receive one of the spares. [] said he would check on the procurement of [] helmet. Additional phase II helmets with integrated masks have not been ordered as prior to now there have been no special demands. 25X1A 25X1A

4. Evaluation items and maintenance of equipment.

25X1A a. Some of the test pilots are wearing evaluation items which belong to the project. Prior to this time we have not been receiving the evaluation data in return. [] stated that in the future we would receive evaluation information on these items. 25X1A

b. Due to the various programs, most of the test pilots fly at different locations. As a result, their equipment is frequently in transient and many times does not receive as good of maintenance as it normally would. Some of the test pilots do not fly at [] but once or twice a year and some have not flown here for over a year. However, in some cases their equipment is still maintained at [] and yet 90% of their flying is done at [] or Edwards. [] stated that he would check into this. Also, there are three suits in our possession that have not been flown for over 6 months to a year. These belong to [] [] stated that both pilots have adequate suits at other locations. [] suggested that we look over the suits and if we can use them, if so, do so, if not, then turn over to [] [] requested that he be sent a message when we decide what to do with these suits. Upon return to [] I was advised that [] had approached [] of David Clark Company and requested the following action be taken regarding these suits.

(1) [] suit be packed and shipped to [] at his present location. In the future he will hand carry his own suit when ever scheduled to fly at []

(2) [] 7-3 assembly will be fitted to [] here at [] if possible. If it cannot be fitted to [] it will be sent with [] other suit 7-2 assembly to [] at Edwards.

5. Upon completion of the conference, [] was given an extensive orientation and familiarization briefing and tour of the present test facilities regarding the work being done by [] and [] there at Burbank.

Captain, USAF
DCOL

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